

19 and the hole in the lid member when extended for use;
20 (f) said extensible frame being manually actuatable by a single hand of an operator so
21 as to be extended sufficiently to pass through the hole in the lid member, remaining
22 within the cover member, but not protruding through the hole in the cover member;
23 (g) the cover member and hinged attachment to said extensible frame being integrally
24 formed of a plastic material such that when the distal end of the needle no longer
25 protrudes through the cover member hole, a rotational movement of said hinged
26 attachment causing the needle point to move laterally into the cover member well.

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24. (New) A needle point guard assembly as in claim 23 wherein said well in said end wall of said cover member lies in that side of said cover member that is opposite to the hinged connection of the cover member to said extensible frame.
25. (New) A needle point guard assembly as in claim 23 wherein the entirety of said needle point guard assembly is integrally formed of a plastic material.
26. (New) A needle point guard assembly as in claim 23 further comprising a fulcrum on said needle point cover, said extensible frame being further operable when said end wall of said cover member lies beyond the extremity of the needle point to act on said fulcrum and thereby cause said cover member to rotate such that the sharp end of the needle enters into said cover member well.
27. (New) A needle point guard assembly as in claim 23 wherein the proximal end of said extensible frame comprises a base cup for attachment to a syringe and a wishbone segment having two arms and a base, said arms being flexibly attached to said base cup such that said base cup can rotate about the axis formed by the attachment of said arms to said wishbone connection.
- 1 28. (New) A needle-protected hypodermic syringe comprising:
2 a hypodermic syringe having at one end a base (adapted to accept a needle point
3 guard safety cap assembly;
4 a hypodermic needle passing axially through said base;
5 a needle point guard safety cap assembly proximally disposed on said base; and
6 a hollow protective sheath having an open end and a closed end, removably disposed
7 over a distal portion of said hypodermic needle, wherein said distal end of said
8 hypodermic needle is disposed within said protective sheath near to said closed end.

29. (New) The needle-protected hypodermic syringe of claim 28 wherein said needle point guard safety cap assembly further comprises an extensible frame having proximal and distal end segments, one end of said proximal end segment being hingedly attached to said base and a second end of said proximal end segment being hingedly attached to one end of said distal end segment, a second end of said distal end segment being hingedly attached to a needle point cover member.

1 30. (New) The needle-protected hypodermic syringe of claim 29 wherein said proximal
2 end segment further comprises a base cup adapted for connection to a hub of a
3 hypodermic needle, said base cup being hingedly attached to said proximal end segment
4 in such manner that a central axis of said base cup ordinarily lies near to a right angle
5 from a central axis of said proximal end segment, whereby said proximal end segment will
6 lie near to a right angle from said hypodermic needle, but can be rotated into a disposition
7 that is colinear with said hypodermic needle by virtue of said hinged attachment between
8 said base cup and said proximal end segment.

1 31. (New) The needle-protected hypodermic syringe of claim 29 wherein said hinged
2 attachment of said needle point cover member is structured such that a central axis of said
3 needle point cover member ordinarily lies near to a right angle from a central axis of said
4 distal end segment, whereby, when said distal end segment is disposed to be essentially
5 colinear with said proximal end segment, said needle point cover member will lie
6 essentially at a right angle from said hypodermic needle, but can be rotated into a
7 disposition that is colinear with said hypodermic needle by virtue of said hinged
8 attachment between said distal end segment and said needle point cover member.

1 32. (New) A needle point guard safety cap assembly, comprising:

2 a flexible frame comprising a proximal end segment that is hingedly attachable at a
3 first end thereof to a hypodermic syringe having a colinear hypodermic needle,
4 said flexible frame further comprising a distal end segment hingedly attached at a first
5 end thereof to a second end of said proximal end segment; and
6 a needle point cover member hingedly attached to a second end of said distal end
7 segment, each of said proximal end segment, distal end segment, and needle point
8 cover member being adapted to be rotationally placed into near colinear alignment
9 with said hypodermic needle, whereby said needle point cover member can be placed
10 into a protective, covering position over said needle tip by rotational means involving
11 no inwardly directed in line movement of the fingers along the needle axis in the
12 direction of said needle tip.

1 33. (New) A method of assembling a needle-protective hypodermic syringe, comprising:

2 providing a syringe attachment member adapted for connection to a hub of a
3 hypodermic syringe having a hypodermic needle disposed thereon;
4 further providing a flexible frame flexibly attached at a first end thereof to said
5 syringe attachment member wherein, in a relaxed condition, said flexible frame
6 lies at an angle near to 90 degrees to a central axis of said syringe attachment
7 member;
8 further providing a needle point cover member flexibly attached to a second end
9 of said flexible frame wherein, in a relaxed condition, said needle point cover
10 member lies at an angle near to 90 degrees to a central axis of said flexible
11 frame;
12 connecting said syringe attachment member to said hub;
13 rotating said flexible frame into linear alignment with said hub;
14 passing said hypodermic needle at least partly into said flexible frame;
15 rotating said needle point cover member into linear alignment with said flexible
16 frame; and
17 passing said hypodermic needle to full extent through said flexible frame,
18 whereby the tip of said hypodermic needle lies within and near to a distal end of
19 said needle point cover member.

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1 34. (new) A protective cover assembly for a hypodermic needle
2 having a needle base, a needle shaft, and a needle tip, the
3 protective assembly comprising:

4 an elongated needle tip cover having an end wall with an
5 opening through and beyond which the needle shaft can extend,
6 either when the hypodermic needle is being stored prior to use or
7 when the needle tip is exposed for use and the needle tip cover has
8 therefore assumed a retracted position;

9 a collapsible frame coupled between the needle base and the
10 needle tip cover to allow the needle tip cover to assume its
11 retracted position, the frame also being extendible after the
12 needle has been used to slide the needle tip cover along the needle
13 until it protrudes beyond the needle tip;

14 means responsive to the extension of the frame for twisting
15 the needle tip cover into a position in which the needle tip is
16 protected by the end wall of the needle tip cover but is precluded
17 from re-emerging through the opening therein; and

18 + means responsive to the extension of the frame not only for
19 locking the needle tip cover in the needle-protective position but
20 also for locking the frame in its thus extended position.

21

22 35. (new) A protective cover assembly as in Claim 34 which
23 includes manual contact means associated with the frame for
24 squeezing the frame in a direction generally perpendicular to the
25 needle to extend the frame and accomplish the needle tip
26 protection.

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1 36. (new) A protective cover assembly as in Claim 34 wherein
2 the needle point shield comprises an elongated hollow member having
3 two end walls with aligned openings through which a needle can
4 extend when in an operative position; one of the end walls also
5 having on its interior surface a well that is laterally displaced
6 from the associated opening, and an interior ridge between the well
7 and the end wall opening such that when the needle after its use is
8 retracted through that end wall opening into the interior of the
9 hollow member the tip of the retracted needle may then be securely
10 retained within the well and thus protected from re-emerging
11 outwardly through that end wall opening.

37. (new) A protective cover assembly as in Claim 36 wherein both the end wall opening of the shield and its internal ridge are laterally displaced from the center of the end wall.

38. (new) A needle shield as in Claim 36 wherein the hollow member has a circumferentially continuous side wall, characterized in that the member is formed as a unitary molded plastic piece, and has a lid to form the other end wall thereof which is pivotable into an operative position and then comes into cork-like engagement with the side wall of the member.

39. (new) A needle shield as in Claim 38 wherein the outer portion of the opening in the lid is flared outwardly to facilitate the twisting of the shield relative to the needle.

1 40. (new) The method of protecting the needle tip of a
2 hypodermic needle after the needle has been used, comprising the
3 steps of:

4 selecting an elongated needle tip cover having a forward end
5 wall with a hole therein, and also having a well in the interior
6 wall surface laterally displaced from the hole, the well and the
7 hole being separated by a ridge on the interior wall surface;

8 extending the needle through the hole for purpose of use;

9 after the needle has been used, sliding the cover forward
10 along the needle until the needle tip becomes retracted through the
11 hole and behind the ridge;

12 moving the cover laterally relative to the needle and
13 partially withdrawing the cover so that the needle tip becomes
14 protectively received in the well; and

15 locking the cover in position relative to the needle.

41. The method of Claim 40 wherein the lateral movement of
the cover is accomplished at least in part by twisting the cover
relative to the needle.

42 The method of Claim 40 wherein the partial withdrawal of
the cover is accomplished essentially concurrently with its lateral
movement.

1 43. (new) The method of protecting the needle tip of a
2 hypodermic needle after the needle has been used, comprising the
3 steps of:

4 selecting an elongated needle tip cover having a forward end
5 wall with a hole therein, and also having a well in the interior
6 wall surface laterally displaced from the hole, the well and the
7 hole being separated by a ridge on the interior wall surface;

8 extending the needle through the hole for purpose of use;

9 then after the needle has been used, sliding the cover forward
10 along the needle until the needle tip becomes retracted through the
11 hole and behind the ridge;

12 moving the cover laterally relative to the needle and
13 partially withdrawing the cover so that the needle tip becomes
14 protectively received in the well; and

15 concurrently locking the cover in position relative to the
16 needle.

44. The method of Claim 43 wherein the lateral movement of
the cover is accomplished at least in part by twisting the cover
relative to the needle.

1 45. (new) A needle point shield comprising:
2 an elongated hollow member having two end walls with aligned
3 openings through which a needle can extend when in an operative
4 position; a forward one of the end walls also having on its
5 interior surface a well that is laterally displaced from the
6 associated opening, and an interior ridge between the well and the
7 end wall opening such that when the needle after its use is
8 retracted through that end wall opening into the interior of the
9 hollow member the tip of the retracted needle may then be securely
10 retained within the well and thus protected from re-emerging
11 outwardly through the end wall opening; wherein the opening in the
12 rearward one of the end walls provides a pivot support to permit
13 the shield to twist relative to the needle passing through it, so
14 that the needle tip then moves laterally from the opening in the
15 forward end wall into the laterally displaced well.

46. (new) A needle point shield as in Claim 45 which is integrally formed as a single plastic piece.

47. (new) A needle shield as in Claim 46 which further includes an extendible frame pivotally attached to the rearward end wall on the side thereof opposite the laterally displaced opening in the forward end wall, for driving the needle cover forward in order to retract the needle tip within the cover.

48. (new) A needle shield as in Claim 46 wherein the hollow member has a circumferentially continuous side wall, characterized in that the member is formed as a unitary molded plastic piece, and the other end wall thereof is formed as a lid pivotable into its operative position and then comes into cork-like engagement with the side wall of the member.

49. (new) A needle shield as in Claim 48 which further includes a lever arm projecting from the other end of the member and laterally displaced from its associated opening to facilitate applying a twisting force to the needle.

50. (new) A needle shield as in Claim 49 wherein the lever arm is on the side of the member that is opposite the well in the forward end wall.

1 51. (new) A protective cover assembly for a hypodermic needle
2 having a needle base, a needle shaft, and a needle tip, the
3 protective assembly comprising:

4 an elongated needle tip cover comprising an elongated hollow
5 member having forward and rearward end walls with aligned openings
6 through and beyond which the needle shaft can extend, the forward
7 end wall also having on its interior surface a well laterally
8 displaced from the associated opening, and an interior ridge
9 between the well and the end wall opening such that after use of
10 the needle when the needle cover is advanced the needle tip may
11 then be retracted through the forward end wall opening into the
12 interior of the hollow member and securely retained within the
13 well;

14 X the opening in the rearward one of the end walls providing a
15 pivot support to permit the shield to twist relative to the needle
16 passing through it; and

17 a collapsible frame coupled between the needle base and the
18 needle tip cover and extendible to slide the needle tip cover along
19 the needle until it protrudes beyond the needle tip;

20 the frame being attached to the rearward end of the cover
21 member on the side thereof laterally opposite the well in the
22 forward end wall for twisting the needle tip cover into a position
23 in which the needle tip is protected by the end wall of the needle
24 tip cover but is precluded from re-emerging through the opening
25 therein.

52. (new) A protective cover assembly as in Claim 51 which also includes means for locking the frame in its extended position.

1 53. (new) A needle point shield comprising an elongated hollow
2 member having on one end thereof an end wall in which there is an
3 opening through which a needle tip can pass; a lid hingedly
4 supported from the other end of the hollow member and adapted to
5 close the other end of the hollow member, the lid having a hole
6 through which the needle can also pass; and the one end wall also
7 having on its interior side a well that is laterally displaced from
8 the opening and an interior ridge between the opening and the well
9 such that when a needle has first been extended through both the
10 hole in the lid and the opening in the end wall for purpose of its
11 use and is then retracted, the tip of the retracted needle can be
12 securely retained within the well and thus protected from again
13 re-emerging outwardly through the one end wall opening; the needle
14 point shield being formed as a unitary molded plastic piece.

11^v 54. (new) A needle point shield as in Claim 53 wherein the
othr end wall thereof is formed as a lid pivotable into its
operative position.

1 55. (new) A needle point shield comprising an elongated
2 hollow member having two end walls with aligned openings, one of
3 the end walls also having on its interior surface a well that is
4 laterally displaced from the associated opening, the other end wall
5 having a lever arm projecting outwardly therefrom but laterally
6 displaced from its associated opening; whereby when the needle has
7 been extended in an operative position through both openings and
8 beyond the one end wall and is then partially retracted into the
9 hollow member, force may be applied to the lever arm on the other
10 end wall relative to its associated opening so as to cause the
11 shield to twist about the needle at that associated opening and the
12 needle tip to then become lodged within the well in a protected
13 position.

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15 56. (new) A needle shield as in Claim 55 further characterized
16 in that the member is formed as a unitary molded plastic piece, and
17 the other end wall thereof is formed as a lid pivotable into its
18 operative position.

19 57. (new) A needle shield as in Claim 55 which further
20 includes an interior ridge between the well and the end wall
21 opening such that when the needle after its use is retracted
22 through that end wall opening into the interior of the hollow
23 member the tip of the retracted needle may then be securely
24 retained within the well and thus protected from again re-emerging
25 outwardly through the end wall opening.

58. (new) A needle shield as in Claim 57 further characterized in that the member is formed as a unitary molded plastic piece, and the other end wall thereof is formed as a lid pivotable into its operative position.

59. (new) A needle shield as in Claim 58 wherein the hollow member has a circumferentially continuous side wall, and the other end wall thereof when in its operative position is in cork-like engagement with the side wall of the member.

60. (new) A needle shield as in Claim 57 wherein the outer end portion of the opening in the other end wall thereof is flared outwardly so as to permit the shield to twist about that opening relative to the needle passing through it.

1 61. (new) A needle protective assembly comprising a needle tip
2 cover having an end wall with an opening through which the needle
3 shaft may protrude, and an extendible frame integrally formed with
4 the cover, the frame being operable when it is extended to advance
5 the cover along the needle shaft and also to apply a twisting force
6 to the cover until the needle tip is retracted within the cover and
7 moved laterally within it to a protected position; the frame also
8 being movable beyond a fully extended position and having means for
9 then locking it into engagement with the shaft of the needle.